AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An electrode array for an artificial vision system that ~~transfers~~ is adapted to transfer an image signal to a retina having tissue containing cells wherein the electrode array ~~provides~~ is adapted to provide connection to the tissue containing the cells, comprising:

a conformable substrate composed entirely of a flexible and stretchable polymer that has the ability to conform to various shapes of the tissue, and

micro-stimulator electrodes embedded in said conformable substrate composed entirely of a flexible and stretchable polymer for contacting the tissue wherein said conformable substrate is composed entirely of poly(dimethylsiloxane) and said conformable substrate composed entirely of poly(dimethylsiloxane) provides the support for said micro-stimulator electrodes.

2. (Previously Presented) The electrode array of claim 1, including conductive leads connected to said micro-stimulator electrodes.

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Previously Presented) The electrode array of claim 1, wherein said micro-stimulator electrodes embedded in said conformable substrate composed entirely of a flexible and stretchable polymer for contacting ~~said~~ the tissue are micro-stimulator electrodes adapted to stimulate with a pattern of electrical pulses useful for stimulating the cells for transferring the image signal to the retina.

7. (Currently Amended) The electrode array of claim 2, wherein the artificial vision system includes a device for transferring a visual image signal

and wherein said conductive leads are connected to ~~a~~ the device for transferring a visual image signal.

8. (Currently Amended) The electrode array of claim 2, wherein the artificial vision system includes a device for transferring a visual image signal and wherein said micro-stimulator electrodes for contacting the tissue are ~~useful~~ adapted for stimulating the cells and said conductive leads are connected to ~~a~~ the device for transferring a visual image signal.

9. (Currently Amended) The electrode array of claim 8, wherein said micro-stimulator electrodes for contacting the tissue are micro-stimulator electrodes adapted to stimulate with a pattern of electrical pulses useful for stimulating the cells in the ~~is~~ retina tissue.

10. (Currently Amended) The electrode array of claim 9, wherein said substrate is composed of a flexible and stretchable polymer composed entirely of poly(dimethylsiloxane) is a flexible and stretchable polymer of a shape and size that has the ability to conform to the shape of said retina tissue.

11. (Currently Amended) The electrode array of claim 10, wherein said conductive leads and said micro-stimulator electrodes are adapted to transmit the image signal to the cells in the retina tissue.

12. (Currently Amended) The electrode array of claim 11, wherein said micro-stimulator electrodes for contacting the tissue are micro-stimulator electrodes adapted to stimulate with a pattern of electrical pulses useful for stimulating the cells in the retina tissue and wherein the cells are retinal neurons.

13. (Cancelled)

14. (Previously Presented) The electrode array of claim 1, wherein said flexible and stretchable polymer composed entirely of poly(dimethylsiloxane) is an elastomer.

15. (Previously Presented) The electrode array of claim 1, wherein said flexible and stretchable polymer composed entirely of poly(dimethylsiloxane) is an elastomer that is flexible.

16. (Cancelled)

17. (Cancelled)

18. (Currently Amended) An electrode array for an artificial vision system for receiving an image signal representing an image and adapted for transferring the image signal to a retina having tissue containing cells wherein the electrode array ~~provides~~ is adapted to provide connection to the tissue containing the cells, comprising:

an electrode array including a conformable polymer substrate, said polymer substrate being a flexible and stretchable polymer composed entirely of poly(dimethylsiloxane) and having the ability to conform to the shape of the retina, and

micro-stimulator electrodes embedded in said conformable polymer substrate wherein said conformable substrate composed entirely of a flexible and stretchable polymer provides the support for said micro-stimulator electrodes.

19. (Currently Amended) The electrode array for an artificial vision system of claim 18, wherein said micro-stimulator electrodes are embedded in said flexible and stretchable polymer substrate composed entirely of poly(dimethylsiloxane) and said micro-stimulator electrodes are adapted to contact the retina and are adapted to have the image signal ~~stimulates~~ stimulate the cells in the retina.

20. (Currently Amended) The electrode array for an artificial vision system of claim 18, including conductive leads connected to said micro-stimulator electrodes wherein said conductive leads and said micro-stimulator

electrodes are adapted to transmit the signal representing the image to the cells in the retina.

21. (Currently Amended) The electrode array for an artificial vision system of claim 20, wherein said micro-stimulator electrodes are micro-stimulator electrodes adapted to stimulate with a pattern of electrical pulses useful for stimulating the cells in the retina tissue and wherein the cells are retinal neurons.

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Currently Amended) An electrode array implant for an artificial vision system for receiving an image signal representing an image and adapted to transmit the image into an eye and to a retina having tissue containing cells, comprising:

an implant adapted to be connected to the eye and the retina ~~consisting of~~ comprising a flexible polymer substrate, said flexible polymer substrate consisting of poly(dimethylsiloxane) and being flexible and stretchable and having the ability to conform to the shape of the retina, and

micro-stimulator electrodes embedded in said flexible polymer substrate ~~consisting of~~ comprising poly(dimethylsiloxane) wherein said conformable substrate comprising poly(dimethylsiloxane) provides the support for said micro-stimulator electrodes.

26. (Currently Amended) The electrode array for an artificial vision system of claim 25, wherein said micro-stimulator electrodes are embedded in said flexible polymer substrate consisting of poly(dimethylsiloxane) and are adapted to contact the retina and the signal representing the image is adapted to ~~stimulates~~ stimulate the cells in the retina.

27. (Currently Amended) The electrode array for an artificial vision system of claim 25, including conductive leads connected to said micro-stimulator electrodes wherein said conductive leads and said micro-stimulator electrodes are adapted to transmit the signal representing the image to the cells in the retina.

28. (Currently Amended) The artificial vision system of claim 27, wherein said micro-stimulator electrodes are adapted to transmit the signal representing the image to the cells in the retina and wherein the cells are retinal neurons.

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Withdrawn) A method of processing an electrode array for connection to tissue containing cells, comprising the steps of:

implementing initial processing steps on a polymer substrate that has the ability to conform to various shapes of said tissue,

plating or otherwise depositing a conductive material on said polymer substrate to form electrodes on said polymer substrate for contacting said tissue,

patterning conducting lines on said polymer substrate, and

implementing final processing steps on said polymer substrate.

33. (Withdrawn) The method of processing an electrode array of claim 32, wherein said conductive material is biocompatable.

34. (Withdrawn) The method of processing an electrode array of claim 32, wherein said conductive material is implantable.

35. (Withdrawn) The method of processing an electrode array of claim 32, wherein said conductive material is gold or platinum.

36. (Withdrawn) The method of processing an electrode array of claim 32, wherein said polymer is an elastomer.

37. (Withdrawn) The method of processing an electrode array of claim 32, wherein said polymer is an elastomer that is flexible.

38. (Withdrawn) The method of processing an electrode array of claim 32, wherein said polymer is an elastomer that is flexible and stretchable.

39. (Withdrawn) The method of processing an electrode array of claim 32, wherein said elastomer is poly(dimethylsiloxane).

40. (Withdrawn) A system of fabricating a flexible electrode array, comprising the steps of:

spin-coating a PDMS layer onto a handle wafer that has been pre-coated with a conductive seed layer,

patterning said PDMS to expose said conductive seed layer to form electrodes,

plating said electrodes slightly higher than the thickness of said PDMS until said electrodes form slight mushroom caps which later will prevent said electrodes from popping out of said PDMS when said PDMS is removed from said handle wafer, and

patterning conducing lines on said PDMS.

41. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein said step of patterning conducing lines on said PDMS is conducted using thin film deposition.

42. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein said step of patterning conducing lines on said PDMS is conducted using photolithography.

43. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein said step of patterning conducing lines on said PDMS is conducted using shadow masking.

44. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, including the step of directly embeding an electrical connector into the device to interface with electronics.

45. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, including the step of casting a PDMS capping layer to said PDMS.

46. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, including the step of bonding a PDMS capping layer to said PDMS.

47. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein said conductive seed layer is biocompatible.

48. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein said conductive seed layer is gold.

49. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein said conductive seed layer is platinum.

50. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein said conductive seed layer is a conductive polymer material.

51. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein a pre-patterned or formed PDMS layer is bonded to the handle wafer.

52. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein a pre-patterned or formed PDMS layer is cast in place with a mold

53. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein gold electrodes are electroplated onto said conductive seed layer.

54. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, wherein platinum electrodes are electroplated onto said conductive seed layer.

55. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, including the step of directly embedding an integrated circuit into the device such that it interfaces with the electrode array.

56. (Withdrawn) The system of fabricating a flexible electrode array of claim 40, including the step of spinning on a PDMS capping layer to said PDMS.